

# STRATEGIC ISSUES AND TRENDS

June 2009

Published bi-monthly by  
ASME Strategic Issues  
Committee

ASME  
1828 L Street, N.W.  
Suite 906  
Washington, DC 20036  
Phone: 202-785-7382  
Fax: 202-429-9417  
E-mail: [pratta@asme.org](mailto:pratta@asme.org)

## U.S. Skilled Worker Shortages: Reality or Myth?

The recent economic downturn has re-ignited debates among policy-makers about the supply of skilled workers in the United States, the state of science and engineering (S&E) education and the role of highly skilled immigrants in the United States. The current unemployment numbers suggest that shortages of skilled workers are more myth than reality, but, ironically, the economic crisis could make this myth a reality over the next decade.

The recession has hurt both highly skilled and low skilled workers. Although the employment rate for professional workers has increased from 3 percent in the fourth quarter of 2008 to 3.7 percent in the first quarter of 2009, analysis of job numbers from the Bureau of Labor Statistics (BLS) by IEEE show that the unemployment rate for engineers jumped from 2.9 percent to 3.9 percent over the same time period. The slowing economy also caused the unemployment rate for mechanical engineers to rise from 2.1 percent to 4.2 percent.

These job losses have increased calls for changes to the nation's visa programs for highly skilled immigrants. The Obama administration has recently restricted the hiring of H-1B visa-holders by companies bailed out by the Federal government and stepped up fraud enforcement for H-1B visa holders. The H-1B visa program allows U.S. employers to temporarily employ foreign workers in highly skilled occupations such as S&E. Opponents of the H-1B visa program argue that the program discriminates and displaces American workers. Pro-business groups fear the Obama administration will further tighten immigration controls and are making the case that the U.S. will soon suffer from shortages of the skilled workers needed to create jobs and compete globally.

Large and growing budget deficits at the state and local level increase the likelihood that the United States will be unable to train enough scientists and engineers to meet future demand. According to the Center on Budget and Policy Priorities, thirty-six states have cut or plan to cut overall funds for education. Twenty states have cut per-pupil financing for K-12 education and eliminated many special programs including science and math initiatives. Twenty-eight states have cut university programs, increased

class sizes, instituted tuition raises and cut higher education budgets. Some states have called for or instituted cuts and tuition raises of 15% or more.

These cuts threaten gains in S&E education made during the 1990's and could cause future shortages of skilled workers. High school math scores and undergraduate enrollment in S&E increased in the 1990's, although the growth was not enough to meet the 3.6% average annual growth rate for S&E workers. Total graduates with S&E degrees rose at a 1.5% rate during this time period, leaving large shortages of skilled workers, which amped up the demand for foreign skilled workers. Technology companies, prior to the recession, relied heavily on foreign scientists and engineers to fill positions.

Forecasts for the next decade indicate slower, but still robust, growth in the field of science and engineering. For example, the BLS forecasts that total employment in engineering will increase by 11% between 2006 and 2016, with slower growth projected for mechanical engineers (4% rather than 11%).

A prolonged economic recovery could dampen demand for new engineers and encourage older engineers to stay in the workforce longer. This year, the first wave of Baby Boomers will turn 62. Historically, fifty percent of workers with bachelor degrees in S&E stop working full time at the age of 62. Half of S&E bachelor's degree recipients leave the workforce entirely by age 65. However, recent declines in retirement plans and 40 (1) k accounts will keep many workers in the workforce longer than they originally intended.

Yet, precisely because of the recession, the country could be setting itself up for a workers shortage in the future. A prolonged recession will slow, but not stop, the expected retirement of older engineers in the workforce while cuts in education will hurt the development and training of a younger generation of engineers required for when the economy eventually recovers.

### **ASME Implications**

ASME should keep a close eye on current developments in the broader economy as changes in current trends will have a large impact on future demand and supply of mechanical engineers. In the near term, ASME can help its membership by engaging older members with resources and programs to aid them in staying in the workforce longer. ASME can also be a forceful advocate for the retention of S&E education in the face of widespread government deficits. By taking a lead in this area, ASME can help meet the following strategic objectives:

- Better serve our core customers (C1)
- Develop new and expanded market relevant content (I2)
- Provide effective representation and advocacy for the engineering profession (I3)